

What is claimed is:

1. A semiclosed Brayton cycle power system comprising:

a storage tank/separator containing an inert gas;

a compressor connected to said storage tank/separator to receive and compress said inert gas;

a regenerator connected to said compressor to receive and to partially heat said compressed inert gas;

an O₂ source connected with said regenerator to mix O₂ from said O₂ source with said partially heated, compressed inert gas from said regenerator;

a diesel fuel tank for providing diesel fuel;

a combustor connected to said regenerator and said O₂ source for receiving a mixture of partially heated inert gas and O₂, and connected to said diesel fuel tank for receiving diesel fuel, said combustor providing through combustion a heated working fluid mixture of steam, inert gas and CO₂;

a turbine in communication with said combustor for receiving and expanding said heated working fluid;

a power transfer means connected between said turbine and said compressor, said transfer means enabling said turbine to drive said compressor;

said regenerator being connected to said turbine for receiving said expanded working fluid and utilizing said expanded working fluid for said partial heating of said inert gas;

a spray cooler/condenser connected to said regenerator for receiving seawater and said expanded working fluid and cooling said expanded working fluid by direct application of said seawater to said expanded working fluid, said steam in said expanded working fluid condensing to water and mixing with said seawater, said carbon dioxide in said expanded working fluid dissolving in said water and seawater, and said inert gas in said expanded working fluid remaining in the gaseous state; and

said storage tank/separator being connected to said spray cooler/condenser for receiving said inert gas and said mixture of seawater, water and carbon dioxide, and said storage tank further connected for discharging said mixture of seawater, water and carbon dioxide.

Sata' 2. A semiclosed Brayton cycle with direct heat transfer

according to claim 1 further comprising:

an auxiliary compressor connected to be driven by said turbine, said auxiliary compressor further connected for removing and further compressing a preselected portion of said inert gas from said compressor; and

an accumulator connected to said auxiliary compressor for receiving said inert gas compressed by said auxiliary compressor.

3. A semiclosed Brayton cycle with direct heat transfer according to claim 2 further comprising:

said compressor being connected to said accumulator for receiving inert gas from said accumulator; and

a pressure reducing valve connected between said accumulator and said compressor with said accumulator being on the higher pressure side of said pressure reducing valve.

4. A semiclosed Brayton cycle with direct heat transfer according to claim 3 further comprising a flow through valve located

between said auxiliary compressor and said accumulator for preventing backflow from said accumulator through said auxiliary compressor.

5. A Brayton cycle process comprising the steps of:

supplying inert gas from a supply tank/separator to a compressor;

compressing said inert gas in said compressor;

preheating said compressed inert gas in a regenerator;

mixing said heated compressed inert gas with oxygen;

combusting said oxygen in said oxygen and heated inert gas mixture with diesel fuel in a combustor to form a hot high pressure steam, carbon dioxide, and inert gas working fluid;

expanding said hot, high pressure working fluid in a turbine to extract energy therefrom;

supplying said hot, expanded working fluid to said regenerator for preheating said inert gas;

cooling said hot, expanded working fluid by mixing said working fluid with seawater to form a liquid and said inert gas, said carbon dioxide being dissolved in said liquid;

separating said liquid from said inert gas in said storage tank/separator;

recirculating said inert gas; and

pumping said separated liquid from said storage tank/separator from said cycle.

6. A Brayton cycle process according to claim 5 comprising the additional step of removing a portion of said inert gas from said compressor to an accumulator.

7. A Brayton cycle process according to claim 6 comprising the additional steps of:

removing said inert gas from said accumulator;

expanding said removed inert gas; and

forwarding said expanded, removed inert gas to said compressor.